

56
21

1 1. A method of controlling a data head for reading data
2 from a data track on a magnetic tape in a magnetic tape drive,
3 comprising:
4 determining signal quality for read data signals
5 produced by a data head reading data from a data track; and
6 adjusting the position of the data head relative to the
7 data track using the signal quality.

1 2. The method of claim 1, wherein adjusting comprises:
2 performing a seek operation that includes changing the
3 position of the data head and determining changes in the
4 signal quality corresponding to the changes in data head
5 position until a predetermined level of improvement in the
6 signal quality is achieved.

1 3. The method of claim 1, wherein changing the position of
2 the data head comprises:
3 stepping of the data head laterally across the data
4 track.

1 4. The method of claim 3, wherein performing the seek
2 operation further comprises:
3 using the determined changes to determine direction and
4 size of steps of the stepping.

1 5. The method of claim 4, wherein performing the seek
2 operation further comprises:
3 comparing each of the determined changes to a lower
4 threshold; and
5 comparing a current number of steps taken by the seek

6 operation to a maximum number of steps.

1 6. The method of claim 5, wherein adjusting further
2 comprises:

3 maintaining the data head at a current position without
4 stepping when results of the comparison indicate that the
5 determined change is below the lower threshold and the current
6 number of steps taken exceeds the maximum number of steps.

1 7. The method of claim 6, wherein the lower threshold
2 comprises a hysteresis value.

1 8. The method of claim 6, wherein adjusting further
2 comprises:
3 monitoring the signal quality while maintaining the
4 data head at the current position to detect any changes in the
5 signal quality greater than the lower threshold; and
6 if any changes greater than the lower threshold are
7 detected, repeating performing the seek operation.

1 9. The method of claim 6, wherein adjusting further
2 comprises:
3 determining that the data head has been maintained at
4 the current position without stepping for a period of time in
5 excess of a predetermined maximum re-seek time threshold; and
6 repeating performing the seek operation.

1 10. The method of claim 1, wherein determining comprises:
2 obtaining the signal quality values from a read channel
3 device.

1 11. The method of claim 1, determining comprises:

2 generating the signal quality values for data read from
3 a data track.

1 12. The method of claim 1, wherein the signal quality
2 comprises error values.

1 13. The method of claim 12, wherein the error values are
2 indicative of errors between observed values and ideal values for
3 the read data.

1 14. An apparatus for controlling a data head to read data
2 from a data track on a magnetic tape in a magnetic tape drive,
3 comprising:

4 a stored computer program in memory instituting the
5 steps of:

6 determining signal quality for read data signals

7 produced by a data head reading data from a data track; and

8 adjusting the position of the data head relative to the
9 data track using the signal quality.

1 15. A tape drive system comprising:

2 a data head structure to produce read data signals from
3 data recorded on a data track of a tape;

4 a head stepper coupled to the data head structure;

5 a data channel unit to produce read data signal quality
6 values from the read data signals; and

7 a servo controller coupled to the head stepper and the
8 data channel unit, the servo control being configured to use
9 the signal quality values to control adjustment of the
10 position of the data head structure relative to the data track
11 by the head stepper.